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ABSTRACT

Analysis of the needs of users of Compact Disk-Read Only Memory (CD-ROM) was performed at the Tampa campus of the University of South Florida. A review of the literature indicated that problems associated with selecting the appropriate database, searching, and requiring technical assistance were the probable areas of user need. The library has 17 databases and uses 9 types of software. Statistics were gathered on 20 different days, typically during the work week. User need was broadly defined as a request for assistance addressed to the CD-ROM assistant, who was also the observer. Of the 487 questions, 134 were technical questions of various types that concerned software or hardware, 115 concerned selecting the appropriate database, and 110 concerned search strategy. The analysis suggests areas in which librarian and patron training would be beneficial. (Contains 12 references.) (SLD)

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ANALYSIS OF USER NEED WITH CD-ROM DATABASES: A CASE STUDY BASED ON WORK SAMPLING AT ONE UNIVERSITY LIBRARY

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23 November 1992

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An Analysis of User Need with CD-ROM databases:
A Case Study Based on Work Sampling at One University Library

Compact Disk-Read Only Memory or as it is more commonly known, CD-ROM, technology as the "new papyrus" has made a great impact on library services. A review of the literature includes multifold examples of its positive impact: increased access points, ability to combine concepts, decrease in time required to survey the literature, ability to print and/or download and etc. and an acceptance of this new technology by users. Conversely, there have been negative impacts associated with this technology including: costs of the database, hardware, software, subsequent paper and ink costs etc. An additional area of concern includes the question of professional or paraprofessional staffing of CD-ROM databases and the effect of this technology on bibliographic instruction.

This research seeks to expand the literature surrounding the last two areas of concern: staffing and instruction by an analysis of user behavior based on work sampling, at one university library. It will quantify user need when utilizing the University of South Florida's (USF), Tampa Campus Library, and its CD-ROM databases. It is believed that through a better understanding of user need, more effective instruction can be designed and delivered. This research contains three assumptions. One: that verbalized user needs reflect the sum of total user needs. Two: that quantitative research directed at determining user needs will be transferable to other groups of similar composition. Three: by addressing the question of

user needs, performance requirements can be better understood. A possible limitation to this might involve the time frame in which it is conducted. User needs during the summer months may vary from those in the Fall and Spring.

LITERATURE REVIEW

The literature regarding bibliographic instruction abounds with instructional design models. Models which seek to analyze users concepts, behaviors, learning, and approaches to seeking assistance and thereby determine appropriate instruction. Six pervasive elements of instructional design have been noted by Richey and include:

1) determine user needs
2) determine goals and objectives
3) construct assessment procedures
4) design/select delivery approaches
5) check instructional system
6) install and maintain system

Since the implementation of CD-ROM technology in library environments, the literature has sought to analyze its impact by considering limited elements of instructional design.

With regards to element one, the literature is minimal. What exists provides scattered, nonquantified data as to a breakdown of user needs when utilizing this technology with Puttapithakporn's being a singular exception. This study characterized error, and

hence user need, as being mostly composed of two types:

1) Syntactic

2) Semantic

with further divisions within each type. What emerged from an examination of other relevant literature, were five general ares in which user problems had been or were expected to be experienced.

1) Selecting the appropriate database (Jaffe, Johnson, Salomon): Of major concern are users identifying a terminal/any terminal as containing all data ie. not limited by discipline, location or time.

2) Search strategy (Lynn, Moore, Puttapithakporn, Salomon and Silver): Understanding how to initiate and effectively search.

3) Database language (Dimitroff, Glitz, Hlava, Lynn, Puttapithakporn, Salomon): Selection of natural or controlled vocabulary and understanding how this affects retrieval.

4) Boolean logic (Glitz, Jaffe, Johnson, Lynn, Moore, Puttapithakporn, Salomon): Involved conceptually understanding and applying "and", "or" and "not".

5) Technical assistance (Glitz, LePoer, Moore, Puttapithakporn, Silver, Salomon, Whitaker): Incorporates more the mechanics of hardware and some software functioning.

The preponderance of literature seeks to analyze CD-ROMs and users but is directed to elements three, four and five on Richey's model. Attempts at assessing element two, judging from its absence in the literature, is understood to be a given. It might be, to the effect, that users' need access to materials which can be furnished

electronically. Element six typically surrounds the user instruction, its adequacy and continuance. Determining user's needs remains curiously undeveloped. A service is being provided but its specifics remain undefined.

SETTING

Beginning the week of May 10th through the week of July 12th an analysis of CD-ROM user needs was conducted at USF's university library. Tampa Campus Library's Reference Department maintains seventeen databases, utilizing nine types of software, which are available to the USF community and public.

1) ABI/Inform - ProQuest
2) Business NewsBank - Newsbank Electronic Information System
3) Compact Disclosure - DIALOG ON DISC
4) Compendex Plus -DIALOG ON DISC
5) Compustat PC Plus Corporate Text - Corporate Text
6) Dissertation Abstracts International - ProQuest
7) ERIC - DIALOG ON DISC
8) F & S Index plus Text - Silver Platter
9) Current Contents - Current Contents Search & Retrieval Software
10) Investext - InfoTrac
11) MLA International Bibliography - Wilson
12) The Music Index - The Music Index
13) NewsBank - NewsBank Reference Service PLUS

14) PsychLit - Silver Platter

15) Science Citation Index - ISI

16) Social Science Citation Index - ISI

17) SocioFile - Silver Platter

At the time statistics were taken, the databases were located in an alcove directly to the right of the front lobby and were highly visible to entering and exiting patrons. Their normal location, in the Reference Department, was being recarpeted. Each contains the database number above it which corresponds to the user sign-up sheet.

METHODOLOGY

Statistics were gathered on twenty different days, typically during the work-week (one Saturday's worth of statistics was included). User's are asked to make appointments for a particular CD-ROM database and are limited to one hour per database per day but this is not a prerequisite to usage. An examination of the previous month's statistics on user appointments showed "peak-times" as being between the hours of 9:00 A.M. and 5:00 P.M. and as such statistics will be taken only between these times. While the primary mission of the Library is to serve the USF community, non-members are able to utilize various resources, including the CD-ROM databases. Therefore, statistics will not be limited to any set of users but rather, reflect the typical "flow" of needs.

Statistics will include, in part, an eighteenth database, that

of LUIS (Library User Information Service) which is the State University System's OPAC. This will be clarified under Operational Definitions.

OPERATIONAL DEFINITIONS

For the purposes of the analysis, "user needs" was broadly defined as a request, either solicited or unsolicited, for assistance put to the CD-ROM Assistant/Observer. Statistics reflect the initial question unless a period of approximately two minutes passed between questions. Based on a literature review, five common user needs were identified: Appropriate Selection of Database, Search Strategy, Database Language, Boolean Logic, and Technical Assistance. For a one week period prior to formal statistical gathering, types of user needs were examined, and three more need types were identified: Directional Questions, Pre-search Counseling and Understanding Search Results. Illustrations of these terms follows:

1) Directional Questions: (Those which apply to the databases only.) These will include questions as to where and/or how to make an appointment; where to obtain a disc and the location of LUIS.

2) Pre-Search Counseling: (This must take place prior to database searching.) Included will be assistance on putting concepts into appropriate terms; demonstrating a thesaurus etc.

3) Selecting an Appropriate Database: Includes assistance in selecting an appropriate source (ideally CD-ROM or LUIS but data

will be kept on those who were best served by a print source) most appropriate to a search need.

4) Search Strategy: (Must take place while utilizing an appropriate database.) Includes assistance in initiating a search and selecting menu options while conducting a search.

5) Search Terms: Includes selecting natural or controlled vocabularies and applicable terms.

6) Boolean Logic: Deals specifically with logical operators/ combining results as opposed to search strategy.

7) Understanding Search Results: Includes understanding which fields are relevant to finding the physical item, why specific items were not retrieved, the difference between the abstract and full-text, low-retrieval etc.

8) Technical Questions: These include many question types including printer problems, changing print options, "unfreezing a database", switching databases or discs, determining date coverage, marking/unmarking text etc. and also who has access to the databases, for how long etc.

USER-INSTRUCTION

Various types of user instruction are available. These include group instruction, on-demand one-to-one instruction, one-to-one instruction by appointment; two-sided printed guides developed by USF librarians, vendor-supplied print instruction; and on-screen instruction. In addition, the CD-ROM Desk is consistently staffed

Monday through Friday from 2:00 P.M. to 4:00 P.M. and inconsistently at other times by paraprofessional staff. Group instruction and instruction by appointment remain the least used. In addition to typical capabilities, users are encouraged to download and these instructions are incorporated in all types of instruction except vendor-supplied print and on-screen instruction.

CONCLUSIONS

Below follow the collected statistics:

1) Directional Questions:	32
2) Pre-Search Counseling:	6
3) Selecting an Appropriate Database:	115
4) Search Strategy:	110
5) Search Terms:	31
6) Boolean Logic:	26
7) Understanding Search Results:	33
8) Technical Questions:	134
	487

Several areas of heavy need emerged: difficulty selecting an appropriate database, conducting a search strategy and technical questions.

In summary, while the literature addresses questions of assessment procedures, designing/selecting procedures, checking instructional systems and installing and maintaining systems research identifying user needs is minimal and with one exception,

scattered. By an examination of need, service can be enhanced. Staffers CD-ROM skills can be evaluated to determine appropriate use of professional and paraprofessionals. Instruction whether for groups or individuals; print, on-screen, or audiovideo could be better designed and, hence, delivered. As access to electronic sources continues, the importance of this issue can only increase.

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